Different portrayals of Koalas on Kangaroo Island: what gets whose attention (and what doesn't)

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ABSTRACT

During this study, the public debate about the most appropriate way to manage an overabundant population of introduced but highly charismatic animals on Kangaroo Island (South Australia) was examined. In the 1920s, 18 koalas were introduced to the island in response to concerns about their survival on the mainland, subsequently increasing greatly in numbers. By the 1990s, large concentrated populations of Koalas had caused extensive tree deaths and resulting environmental damage, with associated economic and animal welfare issues.

This study aimed to discover why and how the management of this population of animals had become problematic. Using an Actor-Network approach, different understandings of the koalas on Kangaroo Island were analysed. Several distinct groups, with different views of the koalas and ideas of how the animals should be managed, were active in the discussion as to how the situation should be managed and why. There were few points of agreement between most of these groups, whose contributions to the discussion were to a large extent reflecting fundamentally different world views. One consequence of these differing world views was that the groups had profoundly different views of the koalas themselves.

Four different ways of viewing koalas were in evidence. Conservation-minded people and groups described the koalas as respected, wild animals with intrinsic value, but recognised that conservation included wider ecological assemblages than the koalas alone. Farmers described the koalas as no different from any other of the animals on their land, whether stock, feral or native; if causing problems then their numbers should be checked and, as in the case of other overabundant species, farmers should be permitted to do this. Activists described a more anthropomorphic koala that was cute, harmless and loveable and which was vulnerable to harm as a result of actions proposed by other groups and which therefore needed to be protected. Scientists tended to define the koala as introduced, inbred and overabundant, advocating significant reductions in numbers although there were alternative suggestions as to how this would be best achieved.

These accounts of different understandings of the koalas, the environment and of other people's motivations, demonstrate how a perverse outcome – no effective measures to address the problem – eventuated. The prevailing image of this iconic species as a unique Australian species under threat and deserving of conservation measures has extended its protection to the koalas on Kangaroo Island although the koalas on the island are neither rare nor vulnerable and are of equivocal conservation value.

Despite a great deal of attention from politicians, research and discussion amongst scientists, effort from farmers, and both unfocused activism and the efforts of an activist organisation dedicated solely to serving the interests of all koalas everywhere, the koalas on Kangaroo Island remain overabundant. Thus, besides the damage underway to the environment of the island, the koalas remain vulnerable to adverse welfare consequences not only via the effects of their own overpopulation (starvation etc) but also via possible informal attempts to limit their numbers by the deliberate introduction of disease or by shooting.

Key words: Koala, Kangaroo Island, Actor Network Theory, Human Dimensions of Wildlife Management, Qualitative Analysis.

Introduction

This study examined the heated and complex debate about what constitutes appropriate management of the koala *Phascolarctos cinereus* population on Kangaroo Island (KI), South Australia. On one hand an apparently clear-cut problem – simply too many koalas on the Island – Kangaroo Island's koalas have been a topic of debate locally, nationally and internationally.

Public statements and opinion pieces by "experts" abound; "farmers" are periodically reported in the sensationalist media as illegally killing koalas; koala supporters, including the Australian Koala Foundation (AKF) deployed a large support base (many overseas), of letter writers; and the South Australian Government, having made political capital of the issue whilst in opposition, is mindful of the

Pp 22 - 32 in *Too close for comfort: contentious issues in human-wildlife encounters,* edited by Daniel Lunney, Adam Munn and Will Meikle. 2008. Royal Zoological Society of New South Wales, Mosman, NSW, Australia.

political consequences of any eventual course of action. The resulting hamstrung management approach has not represented optimal population management but has been very expensive. Meanwhile, the opportunity to propose expensive high-tech fixes was not lost on some scientists, to the dismay of the local populace who have only two sealed roads. As the debate plays out, a population of over 30 000 introduced herbivores is steadily chewing the trees to death, spreading along riparian zones and remnant vegetation, leaving dead and dying trees behind them. The present paper examines the influences different ways of 'knowing' and portraying the koalas have had on the political and management processes and is part of a larger study of the issue (Wilks 2007, 2008).

This study explored different actors'[1] and groups of actors' different understandings of koalas, each other, and the situation on the island. It was not within the scope of this study to evaluate the *merits* of alternative management approaches, which would itself be a difficult task, given that in the case of this iconic, highly charismatic native species, very different value positions are irretrievably entangled with the 'facts' of the case (see for example Possingham *et al.* 1996, Herbert 2007, Lunney *et al.* 2007). Rather, this study aimed to examine and trace the ways in which quantitative data, knowledge and information – about koalas, the environment, and other groups – became subtly (and sometimes unsubtly) transformed in order to better suit the purposes of the different actors. The resulting analysis was then compared with the results of parallel examinations of the accounts given from other perspectives and the scientific and technical literature. From this, it could be seen that there were distinctly different ways of viewing and 'knowing' the animals and that one portrayal in particular had been used as a device to influence management decisions.

Background: Koalas

The natural history of the koala has been exhaustively described (e.g. Lee *et al.* 1990; Martin and Handasyde 1999). Briefly, koalas are medium-sized arboreal marsupials, distributed discontinuously over a large area of eastern Australia from the sub-tropical areas of Queensland, through the eastern parts of New South Wales and into Victoria and south-eastern South Australia. This range encompasses wide variations in habitat types. Absolute abundances should be interpreted with caution due to the variation in habitat quality and the difficulties involved in making estimations; reported populations vary in density from one animal per 210 hectares (Melzer and Lamb 1994) to more than 5 animals per hectare in high quality habitat on Kangaroo Island (Masters *et al.* 2004). Some introduced island populations and mainland isolate populations have overpopulation problems whereas over much of the range, koala conservation involves very different issues such as habitat loss and proximity to urban areas.

Koalas feed almost exclusively on the leaves of *Eucalyptus* species. Between 50 and 60 different species of eucalypts are consumed by Koalas, with marked preferences existing for a small number of species. In southern populations the preferred species appear to be the Manna Gum *E. viminalis* and the Swamp gum *E. ovata* (Buckingham 1999). Koalas may cause tree damage when present at high densities because of their feeding preferences and behaviour. They have a tendency to preferentially eat out the upper central canopy of a tree, leaving only the inaccessible extremities. In addition, they are 'messy' feeders, damaging more foliage than they actually consume, and will often heavily (over)graze one tree while other similar trees are virtually untouched.

Koalas host a range of parasites and are subject to opportunistic pathogens. The most significant pathogen of koalas is *Chlamydia*. Probably most mainland koala populations carry *Chlamydia* and the effects on the animals vary from overt signs of morbidity to depression of fertility with few other signs of disease. While some koala populations are either stable or overabundant, other populations are in decline. These declining populations tend to be under stress for other reasons, for example, proximity to urban areas and associated dogs, roads, and cleared land. In such populations, outward signs of disease appear to be more common.

It is stated often that Aboriginal peoples hunted koalas for food. Martin and Handasyde (1999) quote several accounts of Aboriginal hunting practices, both eyewitness accounts and tribal stories. Parris (1933) noticed that as the Aboriginal population in central Victoria declined, the numbers of koalas increased, an anecdotal observation reportedly echoed in other areas. Parris also stated that "*…the koala was regarded as a brother by the Gippsland and Yarra tribes and they would not eat a bear…*" (p9). Pratt (1937) stated: "*…all living Australian Aboriginals dislike the highly perfumed flesh of the Koala.*" (p 91). Certainly, not all Aboriginal peoples hunted the koala: "*...an old elder, he said to me; 'sister, I don't believe this bloke knows much. We're fishing people. We never ate them. They don't taste good…'*" and: "*Banjo used to say to me; 'sister, they ain't good eating. We never eat them.'*"

It therefore seems likely that some, but not all Aboriginal peoples viewed the koala as a game animal. In any event, little if any Aboriginal hunting has occurred in recent times. Koalas are also subject to predation by dingoes and dogs.

Koalas are protected by legislation in all States and Territories. Koalas remain the property of the Crown, and the primary responsibility for their management rests with State and Territory Governments. The Australian and New Zealand Conservation Council (ANZECC), a body composed of Commonwealth, State and Territory representatives, developed the *National Koala Conservation Strategy* in 1998, which excludes culling as a population management tool.

1 i.e. those who participate and take actions, see methods section below.

2 Anonymous interviewees, identity withheld in accordance with Human Ethics clearance; further explanation in Methods section.

In South Australia, the koala is protected under the *National Parks and Wildlife Act (1972)*, which prohibits any person from taking or being in possession of a protected species without a permit. Koalas are currently listed as a Schedule 9 "rare species." While provisions exist under the *Act* (Section 53) for destructive management of fauna including koalas, no such permission has been given to date. Other overabundant native and feral animal populations are managed destructively on Kangaroo Island. Annual destruction permits are issued for tens of thousands of brushtail possums *Trichosurus vulpecula*, Tammar wallabies *Macropus eugenii* and Kangaroo Island kangaroos *Macropus fuliginosus fuliginosus*. Feral cats and pigs can be shot without permits. On the mainland, the (SA) State authorities issue permits for the destruction of Corellas *Cacatua sanguinea* and Galahs *Cacatua roseicapilla*.

Kangaroo Island

Kangaroo Island is 12 km south west of the Fleurieu Peninsula, South Australia. The island was isolated from the mainland approximately 9 500 years ago and was then occupied by Aborigines either continuously or episodically until about 2 250 years ago (Lampert 2002). The island is 155 km long and up to 55 km wide, with an approximate area of 4 500 km^2. Almost half of the island is covered by native vegetation, about 30% as National Park (Ball and Carruthers 1998). Of the 1179 plant species recorded on the island, 45 are endemic. Eighteen terrestrial mammals are endemic to the island, and three introduced native species are present; the platypus *Ornithorhynchus anatinus*, koala and ringtail possum *Pseudocheirus peregrinus*. Five non-native introduced species exist on the island: the goat *Capra hircus*, cat *Felis catus*, pig *Sus scrofa*, house mouse *Mus musculus* and black rat *Rattus rattus*, and recently there have been reports of escaped deer establishing feral populations. There are no dingoes *Canis lupus dingo* on the island (Inns 2002). Kangaroo Island is home to approximately 4 000 people, mainly engaged in primary production and tourism-related activities. The island is a significant destination for overseas visitors and ecotourism activities.

Eighteen koalas were introduced to an enclosure in the Flinders Chase National Park, at the western end of Kangaroo Island in the 1920s, in response to concerns about the survival of koalas on the mainland. The koalas subsequently escaped, multiplied, and were reputedly 'present in hundreds' by 1948 (Robinson *et al.* 1989). By 2001, Masters *et al.* (2004) estimated the population of koalas on Kangaroo Island to be in the region of 27 000, a population thought to have increased further to date.

The eucalypts on Kangaroo Island have not adapted to heavy browsing, having existed in an environment free of koalas until comparatively recently. Ball (2002) estimated that at the time of writing the koalas had entirely eliminated many localised *E. viminalis* populations and that half the island's total population of this species had been killed by koala browsing. Accounts from farmers and ecologists[2] indicate that, in areas where localised *E. viminalis* populations have been destroyed by koalas, the koalas will then move onto other species, among these Brown stringybark *E. baxteri*, the second or third most common tree species on the island and the predominant species remaining along roadsides. Besides the potential environmental problems in the vicinity of river and creek lines caused by widespread tree deaths in riparian environments, a further threat is posed by uncontrolled koala browsing; substantial koala populations feeding on *E. baxteri* may spread further eastwards, using *E. baxteri*-dominated corridors, eventually reaching the presently unaffected Dudley Peninsula on the eastern end of the island.

A complicating factor when determining the causes of tree deaths on the island is the presence of other stressors such as edge effects, fertilizer run-off from farming, salinity, *Phytopthera* infections and heavy insect infestations, the susceptibility to which varies between species.

History

A significant fire in Flinders Chase National Park in the 1950s was thought to have delayed the advent of very large problematic koala populations in the area surrounding the release site. However, by 1965 severe tree damage in areas containing high densities of koalas had been noted. Local accounts reinforce published accounts (Robinson *et al.* 1989, Masters *et al.* 2004) that the koalas increased in numbers rapidly, but virtually unnoticed except by a few landholders with properties adjoining the National Park. Older islanders[2] gave detailed accounts of koalas spreading along riparian zones from one property to the neighbouring property concomitant with severe defoliation of riparian vegetation.

Small scale, limited translocations from Flinders Chase, notably to private properties[3] along the Cygnet River catchment, commenced in the 1950s and continued until the early 1970s. Other translocations to the mainland took place during this period. Official management was suspended between the early 1970s and the early 1990s, at which time overabundant koala populations, and the environmental consequences of over browsing, including tree deaths in some areas, attracted the attentions of authorities, scientists and conservationists.

In 1996 the *Koala Management Task Force* was commissioned by the (SA) State Minister for the Environment, comprising representatives of State and Local government, relevant Departments and the scientific, conservation and animal welfare communities (Possingham *et al.* 1996). Working with the 1994 and 1996 survey estimates of koala numbers on the island of between 3 000 and 5 000 (St John 1997), the *Task Force* recommended an immediate reduction in numbers via culling, followed by minor translocations off the Island and maintenance of low koala densities through fertility suppression (Possingham *et al.* 1996). The recommendation of the *Task Force* received negative national and international responses.

3 Both formal and informal translocations. Having koalas on your property was for a while seen as desirable by some landholders who engaged in their own 'adoptions,' sometimes subsequently regretted.

In 1996, the *Koala Rescue Strategy* was launched by the South Australian Government, which aimed to "*relieve habitat damage and avoid suffering and starvation of koalas*" (DENR 1997). This was to be achieved by large scale surgical sterilizations, translocations to the mainland, habitat restoration and protection and follow-up monitoring and further research. As part of the *Strategy*, public donations were solicited, a scheme which eventually cost more money to administer than it attracted in donations[2]. An initial funding input in 1997/98 of over $600 000, of which about one quarter was from the Federal Government, dwindled in subsequent years to $200 000 per annum. By the year 2000, 4 000 surgical sterilizations and 1 100 translocations of sterilized animals had occurred and the population of koalas was widely accepted to be far larger than the estimate used by the *Task Force* (Masters *et al.* 2004).

In 1997 the average cost to catch, tag, sterilize and re-release a koala was $136 (DENR 1997). However, this estimate did not include Departmentally-funded infrastructure, vehicles and staff hours. The full cost to sterilise and translocate a koala is substantially larger and was estimated in 2004 to be in the region of $650[4]. Large sums of money have been expended in attempts to moderate the effects the koalas are having on the ecology of the island; expenditure thought by some scientists close to the issue to be: "*…a complete waste of money…*" on "*… ineffective management…*"

Methods: Qualitative analysis, Actor network theory

Qualitative analysis (QA) is a method well suited to access, describe and evaluate different 'knowledges' or 'understandings' of an issue. This term describes a range of methods commonly used in the Social Sciences which deal with a distinctive form of data; language and texts (see for example Gibbs 2002, Morse and Richards, 2002). Textual materials *are* the data; words express our interpretations, concepts, opinions, beliefs, knowledge and attitudes about the world. Qualitative analysis thus requires an interpretative and contextual approach, and sensitivity to detail and context, rather than a reductive approach focused on numbers, graphs or statistics.

A major strength of this method is the potential to distinguish concepts which might otherwise be lost within the 'digital' signal yielded by questionnaires. Studying words in depth and in context produces an 'analog,' continuously variable and open-ended signal. For example, under questionnaire, 65% of respondents might agree (with the researcher's statement) that koalas are native animals deserving of protection under all circumstances. At interview, 65% of people will still believe this but are able to explain *why*. This may give insights into their beliefs about the nature of the koala, for example as wildlife with intrinsic value or maybe because koalas are cute, within the context of how they view animals more generally, and perhaps also thereby revealing significant and interesting dislocations. During the analysis, data are examined and coded according to themes and expressions of paradigmatic perspectives. A proprietary software package (nVivo) was employed to facilitate the analysis.

QA has been used very widely across many disciplines either descriptively or as a way to develop material for further discussion. In this study, an Actor Network Theory (ANT, sometimes referred to as Actant Network Theory, as a result of translation from the French language) approach has been taken. ANT is derived from the work of Latour (1987), Callon (1986) and Law (1986) in the sociology of science and knowledge. This technique has been widely used to study various aspects of environmentalism, sustainability and land use conflicts. For example, Murdoch and Marsden (1995) studied political conflicts over land-use proposals where environmentalists had enrolled scientific results to fight against proposed development. Woods (1998) studied the conflicts associated with recreational stag hunting and attempts to ban the activity. Sustainable agriculture and food supply chains were examined by McManus (2001), Marsden *et al.* (1999), and Van der Ploeg and Frouws (1999), while Burgess *et al.* (2000) examined different attitudes to the value of wetlands and Bowler (1999) scrutinised urban waste disposal.

ANT is a way to approach an understanding of how things work without adopting a particular paradigm:

> "*…actors know what they do and we have to learn from them not only what they do, but how and why they do it. It is us… who lack knowledge of what they do…*" (Latour 1999).

This approach requires a rigorous attempt to construct a narrative encompassing all perspectives, recognising that results are driven by processes, actions and beliefs, rather than inherent properties. No judgment is made as to the 'truth' or paradigmatic view of the actors[5] and no one viewpoint or source of authority is privileged over another. Humans, non-humans, and institutions may all be implicated as actors with power to act. Natural and social entities are explained together, and the power and influence of physical and natural entities are recognised, in contrast to being hidden, dismissed or treated as artificial or subjective constructs. ANT also allows for the formation of 'hybrid' associations which may cross conceptual divisions, rather than entrenching the notion that there are purely social or purely natural entities. ANT was critiqued by Woods (1998), who found that it could be a useful descriptive approach but could fail to provide full explanations in some circumstances; the reader is referred to this source for a fuller explanation.

4 According to an interviewee who was at that time a senior politician. From publicly available sources this is at least $400 per animal (Sandra Kanck; SA Parliament Hansard, SA Democrats Press Release, 16.09.2004) and that budget item referred to direct costs only.

5 Therefore, beliefs expressed by farmers that activists are ill-informed crackpots are reported as well as beliefs expressed by activists that farmers are red-necked mercenary people who do not care about the environment.

In this study an elastic ANT approach has been applied to the generation of a narrative. In essence, this means a concerted effort to include all entities and pathways through the network in order to generate an account of the different knowledges held by different groups (of actors) and the manners in which these groups' knowledges, efforts and expertise flow and interact. In contrast to writing a purely scientific account, the existence of other sources of information and knowledge is acknowledged and these entities are included in the analysis. This analysis was developed after scrutiny of over 500 textual articles including media and internet articles, policy and position statements, letters and emails between stakeholders and to newspapers and politicians, and interview transcripts of semi structured interviews with participants from all stakeholder groups.

Data collection

Ethics This study was subject to Human Ethics requirements which dictated that information gained via interview would be held in confidence and the results reported anonymously and not be published or attributed in a manner which would allow the identity of the interviewees to be discovered or inferred. In addition, some participants made their private papers available only upon the condition that this material was treated in the same manner.

Interviews Participants were identified in various ways, e.g. participation in current affairs programs, publications in the local press, authorship of scientific papers on the issue, word of mouth etc, and were invited in writing to join the study. Semi-structured interviews, approximately one and a half hours in length, were conducted during November 2004, audio-taped and transcribed. Groups represented included: primary producers, retired primary producers, former primary producers now engaged in boutique-type operations, wildlife park operators, tourist accommodation providers, senior politicians, field scientists, conservation biologists, and two (separate) wildlife conservation groups. Currently-employed staff with the National Parks and Wildlife Services did not participate as management approval was not forthcoming. However, a senior politician with relevant responsibilities, and two former field employees with many years' experience working with koalas, were interviewed.

Other material This included: relevant public statements (web pages, media transcripts etc) by interview participants and other individuals and organisations, a substantial quantity of mail, including some "hate mail" received by politicians and others, policy documents, management protocols, scientific grant applications and expenditure justifications, newspaper articles and letters to newspapers, and interview transcripts. "Saturation" (the point where the data are telling nothing new and data collection can be considered complete; analogous to requirements for reproducibility of results from a scientific experiment) was reached, at which point the dataset contained over 500 documents.

Findings

Several groups of actors, each with different objectives, histories, paradigmatic positions and expertises, were seen to be active in this situation[6]. Among the various items of 'currency' between and amongst the groups were bits of 'knowledge,' perhaps more accurately expressed as bits of 'understandings' of the situation. Among these different understandings were aspects of deeper discourses, for example: dissent with respect to the appropriate use of land on the island, how farmers' experiential knowledge intersects with the peer reviewed, consensual knowledge of scientists, and which knowledge should have primacy, who should be entrusted with decision making about land use practices, and other concerns.

One key to understanding how the situation described above eventuated rests with different concepts of what a koala is, and what the different actors then did with these different ideas. These different concepts serve as signposts to the nature of the different actors' world views.

The main features of these different ways of 'knowing' a koala are described below.

The Conservationists' koala: respected, wild animals with intrinsic value

Conservationists simultaneously wished to preserve all koalas while conceding if they were overabundant then the population should be controlled, in the interests of all species present in the assemblage. Individual animals could be 'foregrounded,' allowing the species to become better understood, while still preserving the 'wildness' of the animals. One ecotourism operator explained:

> *"I think when people come through here, they appreciate the animals more, they respect it more as a species, take a wider view, because they've met an individual …they find that pretty special."*

Although individuals could be foregrounded in this way, this concept of the koala as having intrinsic value deriving from its status as a *wild, Australian, native animal* was contextual; koalas belonged within an ecological assemblage and control of koala numbers could sometimes be necessary because this was a sign the ecology was somehow out of balance (in this case because of their status as introducees). These views acknowledged that the rest of the ecosystem also had worth and the entire ecology should be preserved rather than just the koalas.

The Farmers' koala: no different from any other animal

In general, farmers appreciated the presence of native animals on or near their properties, and did not want to eradicate them but did see a need to control them. While most farmers appreciated koalas as wild animals and as belonging with their landscape, further potentially problematic dimensions were seen. Farmers were not likely to see the koalas simply; this koala has feet of clay:

6 Space precludes a full description of these groups. The present paper is focused on the koalas; the interested reader is referred elsewhere (Wilks 2007, 2008).

"I haven't been able to form an agreement with them about my trees but I wouldn't want to see them all extinct, I like to see them around.

…but they're not what they seem, he just appears to be nice and soft and furry and cuddly, but he's a bony little critter. Got sharp claws! And their revolting habits, they smell, they stink!"

and:

"It's alright to stand back and look at it but if you come into close quarters with one they're not as cuddly and friendly as they appear…

...if one piddled on the roof of your car, it'd lift the paint off. Oh yes, they're stinking things and they bite and scratch."

Based upon personal observations of the consequences of overabundance of an animal with respect to farm management, farmers stated that koalas should be subject to control like any other animal. It was seen as the responsibility of a land holder to manage the consequences of their land use practices:

"…we should control the animals grazing, whether it be on pasture in the form of sheep and cattle or whether it be kangaroos, wallabies, possums or koalas or parrots or anything like that, if we wish to keep our environment reasonably intact, it's up to us to do our bit…"

The Activists'[7] koala: cute and cuddly, harmless and loveable

According to the Australian Koala Foundation website, the koala is:

"…absolutely unique… one of the most beautiful marsupials on the planet… Even the hardest human heart melts when it comes into close contact with them."

Sentiments expressed by other activists defined the koala as *"innocent …amazing…cuddly, harmless, loveable."* Some activists underlined their anthropomorphic nature of their view of the koala when responding to comments made by a senior politician advocating culling: *"This is murder. Nothing more or less. Perhaps we should take a look at our overpopulated cities. Should we kill the children?"*

While the similarity between the body proportions of a koala and of a seated small child and the likely consequences with respect to eliciting a protective response from humans was noted by Strahan (1998) and Martin and Handasyde (1999), this was unsatisfactory for one activist: *"I think that diminishes the koala…the koala is beautiful in its own right. When you constantly compare nature to humans, I think it's nonsense."*

Notions of defencelessness and endangerment complete this image of the koala, and in conjunction with its stated harmlessness, an image emerges of a vulnerable, blameless, almost saintly creature.

This notion that koalas are cuddly and harmless is very powerful, often attributed by farmers and scientists to *"ignorant"* people overseas but conceded by a senior politician to also have currency within Australia:

"…there's a kind of deep romantic association from childhood. With bears, a nd children's stories, Blinky Bill, people grow up with an emotional attachment to them…."

The Scientists' koala: introduced, inbred and overabundant

Peer-reviewed scientific studies describe the koalas on KI as overabundant prolific breeders which were causing local extinctions among food tree species (Masters *et al.* 2004). Koalas are reportedly capable of doubling their population every 2.5 to 3 years under optimal conditions (Martin 1997) and the KI population has been reported as having an overall fecundity of 79% (Robinson *et al.* 1989). Studies examining genetic variability, and the knowledge that the koalas on the island were established from a small number of individuals, lead to the scientific definition of the koalas as "inbred" (Seymour *et al.* 2001). Scientists took a wider view of the consequences of overabundance than most farmers, tending to emphasise the repercussions to the whole island's ecology. From a purely scientific standpoint, there is no dissent; koalas on KI are overabundant, inbred, outside their natural range, and problematic. While arguably preferring to avoid destructive management, there was no evidence that most scientists granted the koala special status among animals, indicating willingness to resort to culling as necessary: *"if they need to be culled, that doesn't worry me at all…"* and: *"I have no more problems killing a koala than I do killing a sheep from that point of view."*

However, it is possible to discern additional dimensions in some circumstances. In some grant applications, the animals were portrayed as a regrettably overabundant species that unfortunately must be controlled via high-tech (=high price) means because lower cost alternatives are unacceptable, for example:

"Although many scientists believe these species need to be controlled quickly through lethal means, this approach has become increasingly unacceptable in socio-political terms…. When it is clear that overabundance leads to environmental damage there is demand for immediate action. The means to do this without culling currently do not exist…" (ARC large grant application, 2004).

These dissident scientists had successfully enrolled the perceptions, promulgated by activists, that the koala may not be culled, and by doing so had garnered large sums of funding in order to pursue certain lines of research. Such endeavours were criticised by all the other actors, for different reasons. Other scientists regretted the diversion of funds away from more 'deserving' causes:

7 Activists: people and organisations who stated their preferences for, and expended their efforts towards, a given course of action (koala preservation) including two prominent conservationists, members of the AKF and other groups, some otherwise unaffiliated interviewees and correspondents via newspaper columns and hate mail to politicians.

> *"…there's only so many dollars within the wildlife management field…to see so much money wasted on ineffective management is a very depressing thing…any money that's spent on koalas is money that's taken away from other species…"*

and:

> *"Who pays for it? Well the poor bloody sugar gliders and the sticknest rats and any other species that are on the endangered list because what happens is, National Parks has a budget and any money that goes to koalas on the island comes out of their general budget…"*

Farmers questioned why large amounts of money were to be spent when a bullet was so much cheaper and there were more pressing needs:

> *"…and our local council has to pay interest to borrow money to fix up our roads! …that money would be better spent in a nursing home or a hospital or on the disabled…"*

Activists found the resulting headlines ("Koalas put on the pill!" etc.) to be counter to propaganda[8] predicated on perceptions of rarity and 'specialness.' A prominent activist commented:

> *"…anywhere in the world I can hear: 'you've got so many koalas you have to put them on the pill or you have to shoot them.' That doesn't help anyone, those media reports, and it's very clever and very devious…"*

Discussion: building the battlefield

The qualitative survey revealed widely different knowledge, attitudes and beliefs held by the actors which were reconciled, or not, with scientific information to assist the actors in making sense of, and making way in, their world.

As Sarewitz (2004) reminds us, while scientific debates aim to isolate facts from values, political debate can be understood as a process of adjudicating value disputes, permitting the use of a range of perspectives and paradigms including faith positions, cultural values, personal experiences etc. as well as scientific facts, singly or in combination, to advance a set of interests. In addition to this basic tension between scientific method and the political process, differences of opinion on how to best adapt scientific knowledge to fit individual and diverse environmental circumstances are often areas of dissent between land managers, farmers, conservationists, politicians and the public, and, as we can see in this case, also sometimes exist within the ranks of scientists themselves.

It might be considered that landholders would know more about these famously cryptic creatures than anyone else. However, portrayals of farmers by some activists as *"…unqualified, ignorant…money grubbing hoons, running mad with a rifle…"* who were *"…only interested in mining their land, they do not care about biodiversity…"* is a powerful incentive for others to discount what they have to say. Similarly, scientists, while enjoying a general legitimacy in society of having the 'right' answer, were generally out of favour with activists, who described them as *"…secretive, cabbalistic…doing research in an ethical and moral vacuum…"* and therefore not to be trusted with anything so precious and important as a koala.

These and other portrayals of various groups (for example of activists as *"ill-informed crackpots"),* have been employed to great effect as a device to influence the outcome of the debate, sometimes accompanied by unintended consequences. For example, the introduction of *Chlamydia* as a population management measure has been dismissed as a management option (Possingham *et al.* 1996). The backlash experienced by some people who have advocated this approach has at times been considerable[9]. Portrayals by some scientists, politicians and managers of people who raised the issue, as *"foolish," "inhumane,"* or *"inconsistent on the issue of koala welfare…"* were accompanied by the 'demonisation' of *Chlamydia*. This demonisation also effectively stifled any prospect of an open discussion of the possible effects of *Chlamydia* as a population management tool. While some scientists and managers believe the deliberate introduction of *Chlamydia* would be unacceptable, other scientists and members of most other groups expressed a wish for an open, informed debate on the subject. *Chlamydia* is now discussed by scientists, conservationists and managers mainly in private[10] for fear of negative reactions; not least the fear of being labelled an *"ill-informed crackpot"* too. This has an additional potential consequence because while the taboo persists, there is a risk that deliberate, unauthorised, and uncontrolled introductions could take place; several interviewees reported either that they had tried to accomplish this, or knew of someone who had, or that they would support such efforts.

While several other studies have found that farmers' understandings of conservation are at variance with that of scientists (e.g. Walsh *et al.* 1996, Wynne 1996, Burgess *et al.* 2000), in this case farmers and scientists are in agreement: the farmers' and the scientists' understandings of the situation overlap at least to the extent of agreeing that the koalas are overabundant, that tree damage and adverse environmental consequences result from this, and therefore it would be desirable to control koala numbers.

8 In the pure sense of the word.

9 Including one instance where activists were merely rumoured to have suggested the introduction of *Chlamydia* as one possible option to be considered amongst other options.

10 This was a very frequent subject of discussion during the (confidential) interviews. For example: *"…I think that would be a great way to look at managing koalas but every time I've raised it I feel like I'm the bogeyman…"* (scientist) and; *"I would really like to see that issue discussed again because I don't understand it."* (scientist) and; *"Well, they talk about it like its smallpox and its ridiculous…."* (activist) and; *"…there are people on the island who have said to me;'if I know where to go and catch them I'd go and bring some back.'…I'm surprised somebody hasn't done it."* (politician).

However, this alliance and mutual acknowledgement of understanding and expertise between farmers and scientists did not eventually contribute positively to achieving the aims of either farmers or most scientists.

Although in coalition, scientists and farmers were treated differently by the other actors. Scientists were given a hearing and granted credibility in the public arena of the debate, whereas farmers were portrayed in a far less flattering light. In the media, scientists were listened to but farmers were the subject of inflammatory reporting. Scientists were looked to by other groups to come up with an answer, but farmers were not: they were to wait and accept the solutions imposed upon them. Although most scientists were acknowledging the farmers' expertise, other groups, especially activists, were not. That some scientists understood them and agreed with them was a validation to the farmers; they had Science on their side. Farmers were then angry, frustrated and bewildered that, having enrolled/been enrolled by Science and scientists, other groups still acted against them: farmers tended to view Science as a problem-solver and politicians as gutless toadies to the "*…general public…,*" "*…other people in other places*" and the "*…ill-informed crackpots.*"

Activists have effectively promulgated and reinforced the soft, fluffy, harmless image of the koala prominently in the media (domestic and international) and by activist and internet activities; reaching voters, letter writers, emailers, and potential overseas and domestic visitors. Politicians are very conscious of this image. While the political and managerial leadership are aware of the other images of the koala, in the media (excepting the very local paper, supported by the advertising and patronage of Kangaroo Islanders) and in many people's eyes, domestically and internationally, the activists' portrayal of the koala as soft, fluffy, harmless and loveable; and under threat from unethical scientists and red-necked farmers, has been enrolled as the prevailing image.

These intersections of knowledges and understandings between actors have confirmed not only the image of the koala but also the ground within which any debate over management must be confined. The pieces on the board have been constructed to exist and move in particular ways only: the stupid farmer who mines his property and cares for nothing that will not bring in money; the unethical scientists doing research in a moral and ethical vacuum; the politicians with chronically short (electoral) term outlooks; incompetent National Parks staff, and so on. Within this arena, there is no latitude for any other existence for the actors: a farmer will not suddenly start caring about native wildlife and a scientist will not suddenly develop a conscience. They are as they have been described and will act as they have been described and it will always be that way. The activism has effectively for the time being at least, frozen the scene and the result is a stalemate.

Dissent by other actors; usually expressions of utter disbelief and frustration, periodically given prominence in media and other reports, is dealt with swiftly and effectively in ways that permit no meaningful discussion of alternative management solutions. On every occasion that pro-culling sentiments – whatever the merits of such an approach – have been expressed publicly, by for example, a politician or a prominent scientist, business operator or farmer, there has been a ripple effect. While such public statements tend to have great support in the immediate vicinity, this support decreases with increasing geographic range. As the distance increases, extending through the 'chardonnay sippers' of the east coast cities of Australia, towards international places such as Japan and the US, support for culling is replaced by condemnation and outrage that the actors, who are as described in the preceding paragraph, could even think about threatening the (soft, cuddly, harmless) koalas.

By promulgating these images of the actors, and framing of the debate as outlined above, and by taking the debate to other places, activists and activist groups have created a very robust framework for the preservation of all koalas, everywhere. Various politicians, including the relevant State Ministers, have many times publicly stated their personal beliefs that excess koalas should be culled, while quickly adding that it is not politically acceptable to their Government to do so, and neither was it to the previous administration. This conclusion; that koalas cannot be culled because it would be unacceptable in a range of places both domestic and internationally, has been reached throughout Australia on several occasions dating at least from the early 1990s, and is reflected in the *National Koala Conservation Strategy* (ANZECC 1998) and the *Task Force Report* (Possingham *et al.* 1996). Political consensus, from both Labor and Coalition governments, has further enhanced the robustness and stability of this framework: affected constituents cannot even vote for an alternative. The trite explanation in such circumstances; that politicians are gutless and too busy looking after their own seat(s), is both partly true and unsatisfying.

The approach adopted during this study has allowed for an account of the differences between the ways in which farmers, scientists, activists and others view koalas, and their accounts of the best way to proceed, without privileging any viewpoint over another. These accounts illustrate that what is 'right' from a particular point of view is a complex, involving the construction of not only one's own group identity but also the identity of the animals and other groups. To do this, actors draw upon their own formal or informal knowledge of their situation and their beliefs about the nature of other entities. The resulting debate is a process of the actors each attempting to ensure their 'knowledge' is the prevailing one.

Conclusions

What has got whose attention? On one hand the solution for too many koalas on Kangaroo Island is very simple, but on the other hand that simplicity is obscured by powerful counter-currents. A powerful iconic image, bearing little if any resemblance to the wild animal in its context as an introduced species on Kangaroo Island, has enabled a minority group to enrol political and management processes towards its stated aim of preventing any harm to any single individual animal, whilst claiming with some success that its aims and activities are science-based

(although these claims have been vigorously questioned by others including senior politicians and scientists). Koala activists, most prominent amongst whom is the AKF, are to be variously credited or blamed (depending on outlook) for a significant contribution towards this outcome, where decision making has been wrested from the control of statutory authorities and vested instead with an NGO.

Kangaroo Islanders, farmers and scientists in general have been locked out of this process. However, if koala populations on the island continue to increase, it will become increasingly obvious that the activists have painted themselves into a corner. Koalas are indeed threatened in many areas of Australia by land clearing, urbanisation and disease, and deserve protection. However, they are not threatened on Kangaroo Island. That a campaign by groups and individuals intended to be in the best interests of the koala is (via the hamstringing of effective management on the island) working against the interests of Kangaroo Island's koalas and the other inhabitants of their ecosystems must surely be an unintended by-blow.

Great damage is in progress, to the environment of Kangaroo Island, its (human and non human) inhabitants and many observers of the situation.

Acknowledgements.

I would like to thank the interview participants for their trust, generosity with their time and access to their private documentation. This project is part of a PhD thesis supported by Macquarie University.

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APPENDIX I

E. viminalis (Manna gum) stand, many dead, some recovering, about one year after the removal of a large localised koala population. Photograph taken at Cygnet river, KI.

Photo: S. Wilks

Wild Koala in a tree.

Photo: S. Wilks

APPENDIX I

Koalas are felt by many people to be virtually irresistable

Photo: S. Wilks

"...looks nice and soft, furry and cuddly, but he's a bony little critter. Got sharp claws...!"

"...if one piddled on the roof of your car, it'd lift the paint off...Oh, they're stinking things and they bite and scratch."

Out of control koalas, Farmers' comments.

Artwork. J. V. Wilks

"...introduced...inbread...overabundant..."

Scientests and ecologists' comments about koalas.

Artwork. J. V. Wilks

Rare, endangered...innocent... amazing, cuddly. ...loveable, harmless"

Activists view of the koala

Artwork. J. V. Wilks